

REMARKS

Claims 1-17 continue to be the pending claims in the application. Claim 3 has been canceled.

Claim Rejections - 35 U.S.C. § 112

The Examiner has rejected claim 3 under 35 U.S.C. § 112, second paragraph as being indefinite because it is drawn to a filler component and is dependent upon claim 2 which includes a filler component. In response, Applicants have canceled claim 3.

The Examiner has withdrawn the previous rejections of claims 2-17 under 35 U.S.C. § 103(a) but has raised new rejections discussed below.

Claim Rejections - 35 U.S.C. § 103

The Examiner has rejected claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Ahluwalia (US 5,965,257) in view of Farrar (US 5,338,349) and Langer (US 4,600,634).

The Examiner states that Ahluwalia discloses structural articles that comprise a substrate having an ionic charge which is coated with a coating having essentially the same ionic charge. The Examiner concludes that “Ahluwalia discloses the claimed invention except for the teaching of a gel catalyst component and that a metallic component is adhered to the coated substrate on one or both sides of the substrate.” The Examiner further states that Farrar teaches a fire resistant and high temperature insulating composition that comprises a binder and a gelling agent and that “the composition can be used as a coating composition.” The Examiner further states that “it would have been obvious to one having ordinary skill in the art to have added Langer’s aluminum sheet to one or both sides of the coated substrate of Ahluwalia and Farrar, motivated by the desire to create a structural article with increased strength and durability.”

If one were to assume, *arguendo*, the motivation to increase strength and durability on which the Examiner bases her rejection, then claim 1 and claims dependent thereon should be deemed nonobvious in view of Ahluwalia '257 and Langer because claim 1, as amended, covers a composite material which does not include a substrate.

If a person of ordinary skill in the art were motivated to increase the strength and durability of a structural article, he or she would not omit an element — the substrate — while retaining the element's function. See, *In re Edge*, 359 F.2d 896, 149 U.S.P.Q. 556 (CCPA 1966) cited at M.P.E.P. Section 2144.04, page 2100-148.

The Examiner states that “claim 1 does not preclude the use of a substrate” and that Applicants argued in the previous response that “claim 1 does not require a substrate.” Applicants stated in their previous response, as they do here, that claim 1 “covers a composite material which does not include a substrate.” Claim 1 recites “a composite material consisting essentially of (a) a first layer, comprising a surfactant component, surfactant-generated microcells, a gel catalyst component and a binder component, and (b) a second layer comprising a metallic component adhered to the first layer. Accordingly, claim 1 does not include a substrate.

The Examiner has also rejected claims 2-17 under 35 U.S.C. § 103(a) as being unpatentable over Ahluwalia, in view of Farrar, Langer, GB 2167060 (GB '060) or Dugan (US 4,994,317) or Dombeck (US 6,228,497). The Examiner asserts that Ahluwalia discloses a structural article comprising a substrate having an ionic charge which is coated with a coating having essentially the same ionic charge comprising a binder material and a filler material. The Examiner alleges that because the binder comprises Hycar 2679, which contains synthetic soap, Ahluwalia teaches a surfactant component and because a surfactant is present, so also is surfactant-generated microcells.

In addition, the Examiner states that Farrar discloses a composition comprising a binder and a gelling agent that can be used as a coating composition. The Examiner equates the gelling agent of Farrar with the gel catalyst of the present invention. The Examiner also states that Langer discloses a flexible sheet made of fiber glass and acrylic binder that includes an aluminum foil backing.

The Examiner then looks to GB '060, Dugan and Dombeck for the teaching of clay in fire resistant materials. The Examiner states that "clay fillers are frequently added to inorganic fiber products to improve their fire resistance" and that "it would have been obvious to one having ordinary skill in the art to have added the clay filler of GB '060, Dugan or Dombeck to the composite of Ahluwalia and Farrar and Langer, motivated by the desire to create a substrate that has increased flame resistance."

Applicants disagree. The invention described in Ahluwalia '257 is "a structural article made by coating a substrate having an ionic charge with a coating having essentially the same ionic charge. The coating consists essentially of a filler material and a binder material." Col. 1, line 66 to col. 2, line 3. The filler is selected from the group consisting of fly ash, charged calcium carbonate, ceramic microspheres and mixtures thereof. Abstract, col. 2, line 21 to col. 3, line 4. The coating does not bleed through the substrate. Col. 2, lines 3 to 8. Nothing in Ahluwalia '257 indicates that clay may be included among filler components to produce a coating that does not bleed through a substrate. Indeed, as Applicants have noted in their previous response, Ahluwalia distinguished his described and claimed invention from prior art laminates that featured clay as a filler in the construction of planar facing sheets. The Ahluwalia '257 patent issued on October 12, 1999.

Furthermore, the Examiner asserts that Farrar discloses a gelling agent which the Examiner notes is capable of absorbing water and expanding in size to provide a degree of

elasticity to the moist composition. The Examiner contends that the gelling agent of Farrar can be equated with the gel catalyst of Applicants' claimed invention. Applicants respectfully disagree.

A skilled artisan looking to Farrar would note that Farrar's disclosed gelling agent is a polymer that forms a gel when exposed to water and that, based on Farrar's teaching, requires the addition of water and must expand, become moist, and grow in elasticity. *See* Farrar, col. 5, lines 26-29. Indeed, the only gelling agent taught by Farrar is sodium polyacrylate. *See* Farrar, Example 1 and claim 16. Sodium polyacrylate (also known as acrylic sodium salt polymer) is the polymer that is commonly used in diapers that absorbs water and swells. The skilled artisan looking to Farrar would not find any teaching of the gel catalyst of Applicants' claimed invention which, as defined in the present application, catalyzes gel formation. The present application further indicates that such catalysts may promote vulcanization to provide permanent cross-linking and to thermoset the first layer which can enhance the strength of the surfactant-generated microcell structure. *See* Application, page 10.

Representative examples of Applicants' gel catalysts are described in paragraph 0030 of the present application and include SSF-GEL, UP-750 and Octocure-590, 456 and 462. Applicants' gel catalyst cannot be equated with the gelling agent of Farrar, *i.e.*, sodium acrylate. The gel catalysts as defined by the present application are not polymeric agents that can be moistened to form an expanded, more elastic composition. SSF-GEL is a sodium silicofluoride dispersion which is an inorganic salt, generally used in latex foam production to cause the liquid starting material to form a solid in response to changes to pH or heat (*i.e.*, it is a pH/heat activated gel catalyst). Octocure® and UP-750 are catalysts of vulcanization and cause permanent cross-linking to occur. A skilled artisan would not find

any teaching in Farrar that would lead to the inclusion of the presently claimed gel catalysts in the compositions of Ahluwalia. Farrar teaches the use of a polymer substance that is capable of absorbing liquid and lacks any teaching whatsoever of the gel catalyst of the present claims.

The rejection is also based on Langer which discloses sheet material comprising an inorganic fiber, such as fiberglass; a binder, such as acrylic resin; and an inorganic endothermic filler, such as alumina trihydrate. Abstract. The “endothermic filler occupies the interstices between the fibers.” Col. 4, lines 2-3. Clay is not listed among the fillers, but it is mentioned as an inorganic binder, on which the Langer “compositions do not rely.” Col. 2, lines 53-54. Alternative embodiments feature the addition of a backing to the sheet material to “give added strength.” *Id.*, lines 8-27. The backing materials may be aluminum foil or fabric scrim. *Id.*

The Examiner contends that it “would have been obvious to one having ordinary skill in the art to have added Langer’s aluminum sheet to one or both sides of the coated substrate of Ahluwalia and Farrar, motivated by the desire to create a structural article with increased strength and durability.” The Applicants respectfully submit that, whether it would have been obvious to add Langer’s aluminum sheet to the coated substrate of Ahluwalia ‘257 is irrelevant to the issue of patentability of the instant claimed invention. In claim 1 of the present application, the metallic component is adhered to a first layer, not to the coated substrate of Ahluwalia ‘257. Moreover, in claim 2 of the instant application, the metallic component is adhered to a coated substrate comprising a surfactant component, surfactant-generated microcells, a gel catalyst, a filler component comprising clay and a binder component. As noted above, the Ahluwalia ‘257 coated substrate does not include clay. Indeed, Ahluwalia ‘257 distinguishes the inventive products described therein from prior art Blanpied facers which include clay to decrease the porosity in glass fiber sheets. Langer also employs filler, but not clay, to occupy “the interstices between fibers”. Langer

teaches that clay is not useful as a binder component.

Furthermore, Applicants none of the references cited by the Examiner (GB '060, Dugan or Dombeck) teach or suggest that clay can be used to prepare a first layer that does not bleed through a substrate.

In fact, GB '060 indicates that the material is comprised of synthetic fibers, clay and binder and that these components are "suspended in a fluid, such as gases or liquids, followed by separation on a screen, the fluid, or a portion thereof passing through said screen to leave a mat of solids which is subsequently pressed and/or dries to produce the product, and/or cure or set the binder." Page 3, lines 6-11. Nothing in GB '060 suggests that clay can be used to make a coating having essentially the same charge as a substrate that does not bleed through the substrate.

Dugan relates to a flame barrier fabric comprising a textile fabric substrate, a silicone polymer coating carried by the surface of the textile fabric, and a reflective flame durable paint coating carried by the silicone polymer coating. Abstract. The silicone polymer coating may include flame retardant fillers, such as hydrated clay. Col. 3, lines 58-65. The silicone layer "fills the voids between the yarns," i.e., enters the interstices between the fibers" of the textile fabric substrate. Col. 4, lines 11-12.

Dombeck relates to a high temperature resistant glass fiber composition that consists of glass fibers that are coated with a halogenated resin latex binder, a calcium carbonate material and a cationic flocculant. Abstract. Dombeck indicates that the latex binder is anionically stabilized and that the cationic flocculant is added to act as a coupling agent for the latex binder and calcium carbonate to the glass fibers. The high temperature resistant glass fibers are made by forming an aqueous dispersion including the glass fibers, binder, calcium carbonate and cationic flocculant. The aqueous dispersion is then drained on a wire screen for dewatering to form a mat that is then dried by heated air. Col. 2, lines 64-67

through col. 3, lines 1-21. Dombeck states that other fillers may also be added, such as clay. Col. 5, line 28. Dombeck further states that the glass fibers are negatively charged and that “the excess positive charge on the flocculant causes the anionically stabilized, halogenated latex binder and the calcium carbonate or calcium magnesium carbonate to be deposited on the surface of the glass fibers.” Col. 4, lines 29-36. Accordingly, Dombeck relates to a coating that has the opposite charge as the glass fibers and teaches away from Ahluwalia’s coating that has essentially the same charge as the substrate. Furthermore, Dombeck teaches that the calcium carbonate provides the heat resistance. Col. 4, lines 38-43.

The Examiner’s attention is invited to the USPTO Examination Guidelines for Determining Obviousness, effective October 10, 2007. 72 Fed. Reg. 57,529 provides, *inter alia*, “Note that combining known prior art elements is not sufficient to render the claimed invention obvious if the results would not have been predictable to one of ordinary skill in the art.” Nothing in Ahluwalia, Farrar, Langer, GB ‘060, Dugan or Dombeck suggests adhering a metallic component to a layer formed without a substrate; or that inclusion of clay among filler components produces a coating that does not bleed through a substrate.

Conclusion

Based on the foregoing, it is clear that there are significant, real world differences between the cited art and the composite materials of the present invention. Accordingly, allowance of the claims is earnestly solicited. Please send any further correspondence relating to this application to the undersigned attorney at the address below.

Applicants believe no fee is due in connection with this communication. However, should any fee be due in connection with this communication, the Commissioner is authorized to charge any such fee to Deposit Account No. 06-1205.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

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